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ABSTRACT

This report observes three teachers connected with the Coalition of Essential Schools (based at Brown University) who have begun the work of changing their classroom practices. All are experienced teachers who describe themselves as having been good conventional teachers before becoming involved in the Essential Schools effort. They believe that they are stirring up change in new ways--teaching very differently as a result of their efforts to help their students learn how to learn and thus to teach themselves. Information for the report comes from an ongoing, 3-year study of teacher change sponsored by the Coalition. The report begins by sharing the teachers' descriptions of themselves as conventional educators. All use similar examples and language to describe their past teaching practices. This is followed by glimpses into each of their classrooms to illustrate the kinds of changes they are making (reconceptualized curriculum and assessment and redefined roles). The report concludes with a discussion of common themes in their change processes as well as supports and obstacles to such change. Common principles of the Coalition of Essential Schools are attached. (Contains 14 endnotes.) (SM)

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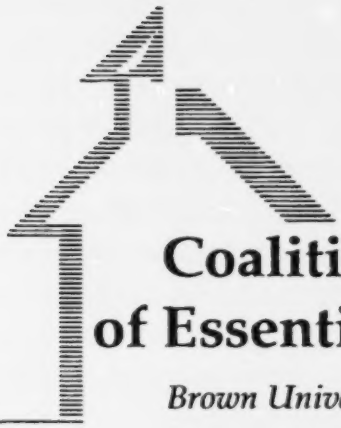

Coalition
of Essential Schools

Brown University

Stirring the Chalkdust

Three Teachers in the Midst of Change

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STUDIES ON SCHOOL CHANGE (No. 4)

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Stirring the Chalkdust

For years, politicians, professors, and much of the general public have been thundering for change in public education. Our society is changing, they say, and students must be equipped with different, more sophisticated skills and abilities. Students need to be able to think critically, they add, to reason, to use logic, to communicate, to work collaboratively and with a global focus.

Secondary school educators agree that the world is changing but many find the process of change complex and confounding. Teachers have been using the same methods for well over a hundred years.[1] The system in which they are working has been in place for well over fifty years — one teacher, one classroom, one hundred and twenty-five kids, one subject. Every day, buses roll in, bells ring, kids flow in and out, and the chalkdust — the evidence that the daily lives of teachers have not changed much over the years — swirls. In the midst of the constancy of practice and the daily realities of conducting school, it is difficult to generate new images of teaching, to understand what teaching might look like if it were organized to prepare students better for an increasingly demanding world.

The Coalition of Essential Schools, based at Brown University, is one of several groups currently offering alternatives to tradition-bound routines and practices. But rather than serving up ready-to-use models, the Coalition proposes a set of nine broad principles that, taken together, characterize a "good" school. These Common Principles evolved out of A Study of High Schools, a five-year research effort into the state of American secondary schools, headed by Theodore R. Sizer.[2] The faculty in each Essential school uses these principles as a guide to rethinking and redesigning their school's pedagogical, curricular, and assessment practices with the goal of helping all the school's students to learn to use their minds well.

In this paper we will observe three Essential school teachers who have begun the difficult work of changing their practices in the classroom. All are experienced teachers who describe themselves as having been good "conventional" teachers[3] before they became involved in the Essential school effort. These teachers believe they are "stirring the chalkdust" in new ways — teaching very differently as a result of their efforts to help their students learn how to learn and thus to teach themselves.

The findings reported here are fledgling insights from an ongoing, three-year study of teacher change sponsored by the Coalition.[4] I begin by sharing the teachers' descriptions of themselves as conventional teachers; all used similar examples and language to describe their past teaching practices. This is followed by glimpses into each of their classrooms to help the reader visualize the kinds of changes these teachers are making. I will then draw out some common themes in their change processes and examine some of the supports and obstacles to such change.

SENSING A NEED FOR CHANGE

Kathryn Montague, Jennifer Rochambeau, and Elizabeth Ehler describe themselves as having been conventional teachers before joining an Essential school program. Kathryn has taught English in an East Coast urban system for eighteen years, most of them at a large comprehensive junior high school whose racially mixed student population had gradually become "majority minority." She taught six periods and approximately 160 students per day. Elizabeth teaches French and English in a large, Southern, rural high school of 1600 predominantly white students. For ten years she taught about 160 students a day in six forty-five minute periods. Jennifer is in her sixteenth year of teaching math, four in an inner-city Southern school system and the past twelve in a nearby suburban high school serving 1100 predominantly white students. Jennifer taught five periods with an average of 150 students a day.

All three of the teachers had used pedagogical methods in which the teacher is central to the teaching/learning enterprise. With the textbook as a guide, they planned the curriculum, prepared the information they believed their students needed, and delivered much of it through lectures. They designed activities to allow students to interact with the concepts they were working on — recitations, essays, book work, an occasional role play. All did the bulk of the talking in their classrooms. Jennifer worked problems for her students at the board. Elizabeth answered her own questions if her students hesitated too long. Each

believed that she encouraged student discussion, asking questions that required students to recount information that had been covered previously. All three admitted they discouraged student discussion when it lapsed into debates of value-laden, conflict-filled issues.

Elizabeth, Jennifer, and Kathryn shared the traditional philosophical belief that students are empty vessels waiting to be filled, that left to their own devices, students tend to waste time and to deal with social concerns rather than the development of their minds. They also believed it was the teacher's responsibility to fill the empty vessels, to provide the course of study and create an environment that enabled students to learn. Their classrooms were, as a result, orderly places with desks in rows and students usually working quietly in isolation.

Both practice and philosophy were influenced by their understandings of their professional responsibility. Kathryn described her role as educator this way: "I was supposed to cover the material and to prepare kids for statewide exams." Elizabeth's definition was similar: "My job was to follow administrative procedures, follow the rules and cover the material." Jennifer said, "I believed that my responsibility was to help the kids, to follow the principal's directives, and to cover the material presented in the math curriculum." All of them handled their paperwork in a timely fashion and worked to maintain classroom order and to avoid burdening their administrators.

The three women described themselves as successful, measured by the standard that their administrators left them alone and gave them satisfactory ratings on their yearly performance evaluations. None mentioned student performance as a measure of their success as conventional teachers.

Despite this success, all three had been frustrated at their inability to reach students; each talked of her individual efforts to improve her skills. Kathryn participated in a number of outside programs that encouraged a variety of teaching methods. She did not, however, incorporate the more innovative techniques learned from these programs into her regular instructional repertoire. Elizabeth talked about the uneasiness she felt at the lack of student motivation and her own inchoate recognition that the methods she was using weren't working for her students. She had devised an elaborate system of individualized instruction that turned out to be enormously complex to maintain.

Jennifer described her frustration as "deadening": "Every year, the kids would get stuck in the same places. Every year they needed more time than the pace of the curriculum would allow. Frankly, I didn't know how to deal with these feelings I had." Jennifer also felt trapped by the math curriculum. She experimented successfully with other teaching techniques in her advisory period, but could not see how to change her practice in math class.

Peering through the Chalkdust: Three Teachers in the Midst of Change

All three teachers — Kathryn, Elizabeth, and Jennifer — were receptive to opportunities to re-examine their own practices and were motivated to change those practices because they believed it would enhance their students' ability to learn. What follows are brief descriptions of the settings in which each teacher works and a glimpse into their classrooms on a typical day.

KATHRYN MONTAGUE

Kathryn has been teaching for three years at Westgate, a small alternative school, a school of choice. There are thirty faculty members and a racially mixed student population of 550 students. Her school occupies the third and fourth floors of an old school complex now shared by three autonomous schools.

Westgate is a new school designed around the Common Principles of the Coalition. Bureaucratic policies are kept to a minimum; teachers share in the decision-making at weekly faculty meetings. Administrators are perceived as partners in the educational enterprise, and the adult work environment is set up to foster collaboration. All faculty members work in interdisciplinary teaching teams — either humanities or math/science. Each team has a two-and-a-half-hour planning meeting once a week during which they develop and revise curricula and their assessments and share experiences and concerns about students. They encourage each other to try new techniques and content, read together, and frequently argue over controversial issues.

The school is divided into four houses of about seventy-five students each. No teacher has more than sixty students per day. The core schedule consists of two two-hour blocks plus hour-long advisory and lunch periods. During advisory, each teacher works with ten or eleven students, providing personal and academic support. The daily schedule for a student looks something like this:

8:00 – 9:00	Spanish language class or library
9:00 –11:00	Humanities
11:00 –12:00	Advisory
12:00 – 1:00	Lunch/Recreational Activities
1:00 – 3:00	Math/Science
3:00 – 5:00	Daily Extended Options

Daily extended options include subjects that are not part of the core program: languages other than Spanish, music, physical education, library skills. Kathryn's daily schedule includes two humanities blocks and an advisory period. All students in the school are grouped in double-age blocks; Kathryn teaches the ninth/tenth-grade block.

Each Thursday, Kathryn and her humanities-team colleagues meet all morning while the team's students are working out in the community. The team consists of four humanities teachers plus a teacher-coordinator who facilitates for the team. The meetings regularly focus on curricular and pedagogical issues surrounding the "essential question"[5] that underlies all the work their students are doing this year; through literature, history, art, and social studies, the students are evolving their own responses to the question, "What is justice?"

The teachers work toward consensus about what their students should know and be able to do and how they might best be expected to demonstrate their knowledge and skills. Practice demonstrations, known as "mini-exhibitions,"[6] take place throughout the year, culminating in a final exhibition in the spring. The team's weekly discussions often range into broader conversations about the importance of student choice; the relationships between and among pedagogy, curriculum and assessment; the value of field trips; value-laden issues such racism and how to teach about them.

Kathryn has arranged her classroom into four separate work areas — one large area for whole-class and individual work and three smaller areas for group work. Today the students in her first humanities block are working on mini-exhibitions based on their reading of *To Kill a Mockingbird*. Kathryn asks the class to work independently on their projects while she works with them individually. Four computers are rolled out of a closet. Several students work on the computers while others work quietly at their own desks.

Kathryn circles the room, stopping to work with each of the students.

One of the students asks for help. He has chosen to rewrite a scene in the book from Boo Radley's perspective. He asks Kathryn, "Did I use the words right?"

She sits beside him and asks him to read his piece to her while she looks on.

"'They are always talking about somebody,'" he reads. "'People have malevolent minds.' Is that right?"

She considers. "Hmmm . . . 'malevolent.' Yeah."

He looks pleased and resumes reading. "'. . . malevolent minds. Some people can pass for good but not most.'"

A bit later Kathryn stops him to clarify a second use of "malevolent." She helps him find a better word. The student resumes reading: "'I see a few kids. Let me move from the window. I don't even know when was the last time I was outside walking around. My amble way is a shame.'"

They work through the use of the word "amble." She encourages him to keep using new words. He reads again, "'Gee, I'm so slow, but I wonder what Atticus's kids are doing. I wish I wasn't in such a bewilderment.' Is 'bewilderment' right?"

Kathryn prompts, "How is Boo feeling at this particular moment?"

"Sad . . . he doesn't know what they're going to do next. He's like . . ."

"Well, what are you when you don't know what you're going to do next?"

"Wait. You're confused."

"Yeah, there you go. 'Bewilder' means confused."

She congratulates him again on his willingness to experiment. They discuss adding periods where he reads breaks in his text, and Kathryn asks him to write an introduction to his piece. The whole conference has taken approximately eight minutes, during which time the rest of the class has continued to work. Kathryn manages to check on each student at least once, some twice, during the two-hour class. She asks questions that prompt them to think. They discuss writing problems, content issues, research procedures, and computer use.

During her hour-long advisory period, Kathryn and her advisees celebrate the birthday of one of the students, talk about their personal reactions to *Mockingbird*, and read the school bulletin. Kathryn explains the upcoming SAT tests. She believes that the time these ten students spend together every day is very important to their success in school; it enables them to make friends and to develop a strong support network that many do not have at home.

After lunch Kathryn meets with her second humanities class. They are continuing a discussion about bail and its purpose in the American legal system, a discussion initiated by an article Kathryn gave them to read some days earlier. This work too addresses the essential question, What is justice?

The class reviews the article and summarizes its main points. Kathryn then divides them into four groups. Each group selects a prosecuting attorney, a defense attorney, a criminal, and a judge. Given one of two actual court cases, their task is to assist the judge in setting bail. After about twenty minutes of group discussion, the judge from each group present his/her decision. No two are alike. Kathryn asks several provocative questions that encourage a lively whole-group discussion on the purpose and the power of bail. Once the discussion is under way, she does not participate other than to keep track of who will speak next. About fifteen minutes before the end of the class, she asks each student to write up and defend his/her own decision about bail in the case they were given.

In the two hours after her second class, Kathryn coaches a few students, meets with a student teacher, and talks with the vice principal and a few colleagues about a meeting that evening. She goes home around five, planning to return around seven for the meeting.

ELIZABETH EHLER

Elizabeth has taught at Newline, a large comprehensive high school in the rural South, for fourteen years. The student population is predominantly white with a sprinkling of African-Americans, Native Americans and Asian-Americans. The school's eleven buildings, sprawling over a spacious campus, are filled to capacity.

Four years ago, with strong support from the school's principal, Newline began an experimental program built upon the nine Common Principles. Elizabeth and three other teachers volunteered to form a pilot interdisciplinary team that would work with the same eighty students — a greatly reduced student load. The students, also volunteers, would work with these teachers for three years. The team organized their schedule around two

double-block periods and were given additional planning time to work together on course development.

The program weathered an unsympathetic interim principal; the current principal, a self-described "supportive skeptic," was charged by the school board and superintendent to expand the program. A second faculty team was chosen from volunteers; new students in the program are now randomly selected. The first group of students graduated last spring; Elizabeth's team has been working with its new group of students for nine weeks. The team members teach their own subjects of math, science, English, and history in two-hour time blocks. Despite the expansion of the program, the teams have remained isolated, and the larger faculty is ill informed about the work they are doing.

Elizabeth's class loads run from fourteen to seventeen students per double-blocked period. She teaches four English classes, seeing each group for two hours every other day and one hour on Friday; her regular schedule looks like this:

8:00 – 8:55	Planning
9:00 –10:50	English
10:50 –11:20	Lunch
11:20 –12:10	Study Hall
12:15 – 2:05	English
2:10 – 3:05	Team Planning

Students can select courses from the larger high school schedule during first and seventh periods. They can also opt into a subject class instead of study hall.

As her first-block students filter into her large classroom, Elizabeth puts the agenda for the day's work on the board. First they are to free-write in their journals, then review last week's work and the homework assignment. The rest of the period will be spent working on their mini-exhibitions on *Of Mice and Men*.

As the students come in, they get out their journals without direction from Elizabeth. The room is quiet for ten minutes. Elizabeth then asks them to review the work they had done the previous week. She calls these "good/bad" discussions: the kids critique what they have done and how they've done it, as well as her role in assisting them in the work. One student reminds her that she has forgotten to give a quiz she promised them. The class groans and shoots dour looks at the culprit. Another student admits that she hasn't done the homework because she didn't know what Elizabeth meant when she asked them to plan their time for the mini-exhibition project.

Elizabeth asks if others had the same problem. About two-thirds had. She notes that since this is their first mini-exhibition, it is bound to be complicated. She reviews what a mini-exhibition is, then explains that she wants them to plan out how they will use the next two weeks to complete the project. Some people might do that on a calendar, others might generate an outline of their activities. One of the girls who has done her planning is asked to put her work on the board. While she is doing that, Elizabeth reviews the suggested project list; students can choose from five or six possibilities or they can generate their own assignment. Generating their own requires a conference with Elizabeth.

Elizabeth adds the third piece to the assignment. Each group (or individual, if a student has chosen to work alone) is to hand in each day an evaluation of their use of time. A discussion follows about the form such an evaluation might take. Elizbeth believes that this kind of self-analysis helps students to learn about their use of time and how they make choices. This is a new activity for this group, but they take it in stride.

For the rest of the period, the class works — in groups or singly — spread out around the room. The noise level is moderate. Elizabeth moves from group to group, checking their progress or asking questions to prompt their work.

Two boys work together quietly, hunched over their notes. Elizabeth stops to check with them. They have decided to write a chapter to add to the end of Steinbeck's book, one of the suggested projects. They show her their work plan for the next two weeks, which includes using their study halls as well as class time.

Monday:	Reread Chapter 6. Study it carefully.
Tuesday:	Outline Chapter 6. Begin discussion ideas for new Chapter 7.
Thursday:	Make small rough draft. Begin Chapter 7.
Monday:	Go to library to research Steinbeck's writing style. Finish Chapter 7.
Wednesday:	Turn in completed assignment (typed).

Evaluation: Be graded on a scale of 1 to 10 on the amount of progress and quality of work we completed each day.

Elizabeth asks them to be more specific about their evaluation. She suggests several approaches, then moves off to join another group.

One girl who has designed her own mini-exhibition tells Elizabeth she'd like to interview someone who has managed to achieve his life's dream. Shorty ... all the other characters in *Of Mice and M*... had life dreams but hadn't achieved them. She wants to telephone a well-known gospel singer to find out what he has to say about being successful. She and Elizabeth discuss arrangements for the call.

The time passes quickly. Elizabeth works with each group and individual. At the end of the period, she calls them together to talk again about the planning process. What had it been like for them? One boy notes that he felt very rushed. She laughs, agreeing that once one begins to break the task down, there never seems to be enough time. They hand in their daily evaluations and journals as they leave.

Elizabeth's afternoon group is livelier than the first and less prone to work cooperatively. They talk louder and move around more. As the students come in, one group of boys describes the violence they would do as a team to Lennie and to George as they reconstruct the book. A group of girls sit down together and start looking through their homecoming pictures.

Once the class is settled, the morning's agenda is repeated. Elizabeth moves more quickly around the room, visiting each group more frequently in order to keep students on task. One girl wants to do a baby book of Lennie as her mini-exhibition. Elizabeth pushes to find out how that might help the student to learn about the book, what she might include, and whether such a project would demonstrate any kind of deeper understanding of Steinbeck's work.

A boy who has done the required homework as well as a draft of his seventh chapter explains to Elizabeth that he tried to maintain the tone of hopelessness that pervaded the rest of the book. "Does this sound like Steinbeck?" He reads, "'The frost on the barley ricks sunk deep into my hands.'"

Elizabeth appreciates the sentence as Steinbeckian but suggests he examine his dialogue, compare it to Steinbeck's. She tells him to keep pushing and moves off to the next group.

As the period nears an end, Elizabeth modifies the evaluation assignment she had given them earlier. Her voice easy and pleasant, she asks them to take out a sheet of paper and to complete the phrase, What I accomplished today —.

"I'd like you to think through what you had to do and what you did. Please be as specific as possible. This is an individual self-evaluation." The room is silent for five or six minutes. Elizabeth then asks them to share. After some squirming, one girl quietly admits that her group spent some of their time on homecoming pictures and that they did not do a very good job. Elizabeth confirms that it is easy to get off task, but asks her to clarify why she believes they had not done a good job. The speaker blurts out that she is working with a group that's doing an assignment she is not really interested in. Elizabeth suggests that she might wish to work alone.

One member of a group of four boys reports that their group was divided: two wanted to work on their project, two did not. The nonworkers had make animal sounds and offered unproductive suggestions about what they might select to do; the other two had become increasingly frustrated. Elizabeth asks him to consider possible solutions to his frustration. He suggests splitting into two groups or talking their frustration over or working alone. Another group describes their productive use of time and shares the evaluation form they've devised.

Elizabeth reviews what she's heard from the students. Students who used their time well seem satisfied; those who haven't seem disgruntled. She asks them to hand in their evaluations and their journals and hopes that when they meet again on Thursday they will be better prepared to use their time well.

As her students slowly leave the room, Elizabeth confides in one of her teammates. "This group is my challenge. I had two possible approaches: I could have lectured to them or I could have stuck to my original plan to give them the opportunity to evaluate themselves. I would have lost everything we've tried to accomplish thus far if I hadn't turned it back to them. But it's hard! This group is taking longer to learn to work together and to accept the notion of student-as-worker. I feel some days like I'm beginning all over again." Her colleague reminds her that they have only had

these students for nine weeks and agrees that comparisons with the students they'd had for three years is hard to resist.

After this class, Elizabeth's team meets for almost two hours. The history teacher asks that they spend some time thinking about how they might integrate disciplines as he begins to cover the ancient Greeks. They spend considerable time on an assignment in history that appeared to be a bomb. Finally, they work on building an evaluation of their program that the principal requested.

As Elizabeth is leaving for the day, three students who graduated from the program the previous spring come in to visit. One wants to show her a paper that received the highest grade in her journalism class at the state university. Elizabeth cheers and the conversation continues warmly as she walks to her car.

JENNIFER ROCHAMBEAU

Jennifer is in her twelfth year of teaching math at Riverdale, a comprehensive high school in a suburb of a large Southern city. Ninety percent of Riverdale's 1100 students are white; the small number of Black students are bused voluntarily from the city. Many Black teachers were transferred to the school several years ago following a court order to equalize racial distribution.

Riverdale has a strong, closely knit math department led by Paulette Miles, whom Jennifer describes as her mentor. For many years, Paulette has encouraged the department to discuss how math should be taught and to scrutinize seriously their textbooks and teaching practices.

Four years ago, the principal began looking at the school in terms of the Coalition's nine Common Principles. He saw that Riverdale was a quiet, industrious place, but doubted that students were using their minds in truly challenging ways. He instituted faculty discussions about the quality of their school and sent a number of faculty members, including Jennifer, to Coalition symposiums. Jennifer and her colleagues attended a workshop where they were asked to examine their own practices in light of how well their students were learning and to identify what they believed would be better practices. Although they felt they had no power to make such changes, they began to think of ways they might overcome obstacles to these better practices. Back at school, the principal gave them the go-ahead to build a program to experiment with Coalition principles. They called the program Opportunities to Learn, quickly shortened to OTL.

Jennifer is both teacher and coordinator in the tenth-grade OTL team, which comprises a biology teacher, a math teacher, a world geography teacher, an English teacher, and a health and life-skills teacher. The team shares responsibility for the same sixty students, whom they see in traditional-length periods each day. Jennifer teaches two OTL math classes, two classes in the "regular" high school, and has a double period to coordinate the OTL program. Her daily schedule is as follows:

7:30 – 8:25	OTL Algebra I
8:30 – 9:25	OTL Geometry
9:30 –11:30	OTL Coordination
11:30 –12:00	Lunch
12:00 –12:20	Lunch Duty
12:25 – 1:15	Geometry
1:20 – 2:10	Algebra

Twenty tenth-grade students are in their seats for the OTL algebra class when the bell rings. Jennifer starts immediately. "Coaches, please take roll for your group. I'd also like you to document your group's progress in each class period for the duration of the new project we're beginning today. How are y'all? Y'all rested and ready to go?" The kids spend a few moments sharing personal details before she begins explaining their new project.

"You're going to plan a vacation. You can plan what you'll do for spring break or summer vacation — whatever suits your fancy. I'd like you to include the following things in your project: a geographical description of the area; a detailed budget; a graph to report the percentages of your budget allocated in different categories; and an oral presentation to explain your trip. You'll be evaluated on three aspects of your project." She hands out a sheet that describes both the project and the evaluation procedure. It reads:

The evaluation will include:

1) A computational component to include your budgets, your graphs, and the work you do on how you will get there and return — 100 points.
2) A visual component to include illustrations, diagrams, charts, and graphs to help us understand your journey — 50 points.

3) A Self- and Group Evaluation: Each of you will assess your own performance on a point scale of 1 to 10. The group will evaluate your ability to work together on a scale of 1 to 15. The group must reach consensus on the score.

She asks for questions, but the students seem clear and immediately begin to talk about where they will go. Jennifer asks them to work in their groups for a few minutes brainstorming possible destinations and the various details they will need to take into consideration. She can quickly see that they are not having difficulty getting started. She hands out a second sheet with a series of tasks, telling the class they will work on these for the remainder of the period:

1. List the resources or manipulatives you will need for your project.
2. Construct a timeline to show how you will complete the project by the assigned date.
3. Identify the math skills or concepts you will be applying.
4. Estimate the total cost of your trip and keep the estimate until you have completed the project.
5. Construct a work schedule to show each person's responsibilities.
6. Design a method of graphically showing each of your budget categories.

"We'll stop about ten minutes before class is over so the coaches can report on the progress you've made." Each group is given a big sheet of paper for their reporting.

Jennifer moves around the room. One group of boys is stuck on the word "consensus." She asks them a series of questions to help them work out the meaning.

"How do you decide what time you have to be in at night?"

"My dad decides!"

"My mom decides."

"What kind of a governmental structure is that?"

In unison: "Dictatorship!"

"How do we elect a president?"

They eventually work out the differences between dictatorial, democratic and consensual decision-making. They recognize that consensus is much harder.

Three students discuss how to get to the Bahamas without flying. Another group talks about time changes between here and Australia; several had not thought about this before.

Jennifer checks in with every group. The pace of the class is brisk, industrious, and friendly. Near the end of the period, she asks for volunteers to share their progress. One group holds up their big sheet; it reads:

To the Beach in Florida:

1. Materials we'll need: poster boards, markers, road maps, pictures.
2. Jed will go to the travel agent. Mark will get road maps from the Shell station. Tom will figure the food and stuff.
3. Addition, subtraction, multiplication, division, DRT [distance/rate/time].

Their graph shows one-third of their money allocated for recreation; food is the largest chunk, while accommodation is very small. Jennifer asks them if they know how to calculate all those things. Their response is quick: "We'll talk to you after class, Ms. Rochambeau!" Everyone laughs. Several other groups report; all are different.

Over the course of the next two weeks, the students will learn to calculate time, rate and distance by flying paper airplanes and floating milk jugs down the river. Then they'll work on building pie graphs by reviewing percentages and discussing the vertex and review what should be included in their budgets. At the beginning of the second week, they'll have a problem-solving session where they bring in the things that are stumping them. Jennifer will give two directed lessons — one using maps to calculate distances, one on interpreting graphs. After another work day, they'll begin their oral reports.

As the bell rings, Jennifer reminds the class to bring in paper airplanes and empty plastic mild jugs the next day and asks the coaches to hand in the day's written evaluation.

There are seventeen students in Jennifer's OTL geometry class. This group is in the midst of a project to design a room. On the first day, this group had done the kind of planning that the algebra students have just done. Their plans are posted around the room. Then she gave them a story problem requiring them to determine the size of an area, which helped them to see what happens to the area of a room when the shape

changes. Today, she has prepared an activity to help them learn to interpret graphs.[7]

Each group is given a set of numbered statements and questions. For example:

1. Prices are now rising more slowly than at any time during the last five years.
5. If movie admission charges are too low, then the owners will lose money. . . . If they are too high, then few people will attend and they will lose again. A movie theatre must therefore charge a moderate price in order to stay profitable.
9. How does the speed of a girl vary on a swing?

They are then given a set of fifteen lettered graphs like the ones shown here. Their task is to match the graphs to the statements.

"Okay. You'll be working in your teams. You must reach consensus on the answers you choose. We'll work for about twenty minutes; then we'll put your choices up on the board and I'll ask you to defend them."

Jennifer moves from group to group. Three boys are hunched over the fifth statement.

"What about K?"

"What about O?" Silence while they consider.

"Nope, I think it's N because if prices are too low, they'll lose money."

They all write N on their papers; one boy groans and says, "Where does she get these things?"

After twenty minutes, one person from each group writes their answers up on the board. There are seven lines of letters. It is quickly apparent where all the groups agree and where they do not. Agreement is infrequent. Jennifer suggests a strategy. "All right, y'all. Find the two most common answers for the first one. Then I want volunteers to defend each of the answers."

A rousing discussion follows. Jennifer does not interfere except to ask the class whether they have reached consensus on a correct answer. When they have not, she asks for additional arguments for choices so that each of the problems becomes clearer and clearer. As the bell rings, she reminds them that their progress report on their project is due the next day.

Jennifer spends the next two periods meeting with the tenth- and eleventh-grade teams. The tenth-grade team will soon have to decide whether to move up to the eleventh grade with their present kids or stay at the tenth-grade level. They stew over the advantages and disadvantages of moving and staying. Most want to stay with the kids.

One teacher mentions that, despite Jennifer's efforts to keep the school counselors informed about the OTL program, some are advising kids against it, telling them it would hamper their chances to get into college. They talk about the increasing resentment among non-OTL faculty about the teams' reduced student loads and extra planning time. Two of the teachers agree to go see the counselors.

After lunch, Jennifer teaches two regular math classes. She has twenty-eight students in one class, twenty-seven in the other, nearly a third more than in her OTL classes. She notes that it is much more difficult with the larger class loads to do the kinds of activities she is doing in her OTL courses — the noise level is higher, there are too many groups to get around to. Still, her teaching practices with these students have changed as well. Instead of kids working individually, she pairs them to do their homework, requiring that they both show the steps they took to arrive at the solution. Instead of working the homework problems for them at the board, she now has the students work the problems they are having difficulty with. She gives the kids partner quizzes and gives both students the same grade.

At the end of the day, Jennifer works with a few students who have stayed after school for extra help and then pokes her head into Paulette Miles's room. Several students are waiting their turn to talk with Ms. Miles; a couple immediately turn to Jennifer for help, which she gives. Once all the students have been taken care of, the two teachers swap materials. Jennifer gives Paulette a copy of the graphing exercise she used with her geometry class. After several minutes, Jennifer glances at her watch and suddenly jumps up, nearly late to chauffeur her two boys to their practices. With a hasty goodbye, she is gone.

New Patterns in the Chalkdust: Reflections on Changed Teaching Practice

Kathryn, Elizabeth, and Jennifer experienced a number of changes as they moved from more conventional teaching practices toward teaching that more closely resembled coaching or directing. They did not perceive the changes as orderly or as occurring in any predictable sequence; rather, they felt that changes had been gradual and were, in fact, still taking place. Commenting on her own sense of progress, Jennifer remarked: "I wouldn't say that I'm a strictly conventional teacher anymore, but I wouldn't say that I'm an expert teacher-as-coach either. I'd say the biscuits aren't out of the oven yet. In fact, I'm not sure they're even *in* the oven!"

The teachers were, nevertheless, clear and thoughtful about many aspects of these changes and readily described those they had purposively instigated in their teaching practices. They fall into three broad categories: reconceptualizing curriculum, rethinking assessment, and redefining roles. While these categories overlap, taking each separately will help clarify the differences in practice these teachers were instituting.

RECONCEPTUALIZING CURRICULUM

Elizabeth, Jennifer, and Kathryn noted that while they used to rely primarily on textbooks and curriculum guides to organize their curriculum, their current practices were substantially different. Those differences were reflected in five ways:

Planning from Questions and Problems

Elizabeth and Kathryn work with their humanities colleagues to establish the curricular framework for the year around an "essential question." Essential questions (such as, What is justice?) have no single right answer and, because they are larger than any single subject area, are amenable to interdisciplinary investigation. The students are encouraged to investigate the subject under inquiry through an area of personal interest. For the teaching teams, the exercise of developing the questions leads to sophisticated, intellectual discussions about their craft. These sessions are often intense, fraught with argument as well as logical discussion and clarification.

Jennifer and her math department colleagues arrange their curriculum around a progression of skills needed in mathematics. To encourage more meaningful and powerful learning, they devise large problems that are closely connected to daily life — planning vacations, remodeling or designing a space. Creating these problems requires that they think beyond strict mathematical theory.

Whatever the discipline, then, these broad questions and problems have become the new departure point in the preparation of curriculum.

Making Interdisciplinary Connections

Another difference was pushed to the surface by essential questions and problems: the teachers found themselves making more interdisciplinary connections. Some are the result of the students' selecting their own angle of interest on a project; for instance, in Elizabeth's classes, the projects on *Of Mice and Men* addressed literary style, mental retardation, child development, and life skills.

Some interconnections result from teacher choice. When Jennifer decided to do a project on travel, she had to think about such nonmathematical areas as geography and international law. Still other connections flow from the choice to teach an interdisciplinary course, such as humanities, and of attempting to help students learn fewer things more thoroughly. Combined, these factors diminished the fragmented nature of the curriculum.

Shifting from "Coverage" to Learning-in-Depth

The teachers all agreed that, previously, one of their primary responsibilities had been to cover all the material specified either by the textbook or the district curriculum guide. As they became more involved in examining their teaching practices, all began to understand that the students were not necessarily mastering the material covered, nor were they retaining it. Their focus on coverage had also encouraged them to use instructional techniques that foster passivity — lecturing while students took notes or giving multiple-choice

tests for recall of factual information, both of which resulted in student boredom and apathy.

As their focus shifted away from mere coverage of content, they found they were no longer looking for ways to motivate the kids to get through all the material; instead, they concentrated on building lessons in which students would be actively engaged[8] — floating milk jugs and feathers down a stream or conducting a mock trial with real attorneys at the local courthouse. Such participatory study helps students master the essential concepts of the various disciplines. This shift does not mean that content is not important but suggests that when powerful learning is the objective, content needs to be viewed from a different perspective.

With the shift toward depth and mastery, the teachers also found they needed to coordinate more closely with their colleagues to determine exactly what should be covered and when. Thus they spent considerable time examining traditional course outlines, curriculum guides, and textbooks to eliminate repetition and to tighten the scope and sequence. Jennifer and her colleagues had found far more repetition in the math curriculum than they had imagined. As they developed the scope and sequence for their courses, they had to confront their own long-held beliefs about what should be taught and in what order. They were astounded to find that they held different opinions about this, although each of them believed that there was one "right" way to do it.

The information explosion has added another dimension to the content issue. It is no longer possible for a nonspecialist to be current in a given discipline at any given time; there is simply too much information, and more is generated each day. The teachers themselves are constantly struggling to keep up in their fields. They have come to believe that it is more important to help students develop the ability to find pertinent information when they need it than to ask them to memorize sets of facts and figures, and that mastering information-gathering skills is in itself an active and engaging learning activity.

Using the Textbook as a Resource

Formerly a central organizing force in their curricular planning, the textbook now serves as one resource among many for students to use in their work. For instance, as background reading for a discussion on how the court system is organized, Kathryn referred her students to their social studies text, to encyclopedias, and to briefs prepared for law students. Jennifer asked her students to locate the pages covering time, rate, and distance in each of their three texts so they could use them as they worked on their group's project. The class located that information together, but they did not go over it at all; instead they went outside to fly airplanes and float milk jugs. All of the teachers believe this use of texts teaches students a very important skill — the ability to find information when they need it.

These teachers believe that textbooks can also actually contribute to poor learning. Kathryn and Elizabeth both noted that when they taught grammar skills out of the textbook, their students did very well. However, in their own writing, students repeatedly made simple mistakes in usage had already been "covered" in their grammar lessons. Math texts generally present a formula and ask students to work problems by plugging in different sets of numbers; the end-of-chapter quizzes present similar problems to test students' understanding of the formula. However, Jennifer and her colleagues found that their students had difficulty recognizing and applying those same formulas in real-life circumstances. All three teachers have come to believe that their students need to practice important skills — like good grammar and mathematical computation — in more realistic contexts if they are to incorporate those skills into their own lives.

Interconnecting Curriculum, Pedagogy, and Assessment

All three teachers had formerly planned the content of their curriculum first, then decided how they would assess it, and, finally, chosen their pedagogical strategies closer to the actual teaching time. In building their curriculum around essential questions and problems, they found themselves moving back and forth among curricular, pedagogical, and assessment issues. With a growing sense of the interrelatedness of the three areas, they began to realize they had to work on all three at once.

RETHINKING ASSESSMENT

Jennifer, Kathryn, and Elizabeth have all begun to make significant changes in their assessment practices. Previously, assessing student work meant

students wrote a paper or took a multiple-choice test at the end of a unit. The more the teachers analyzed ways to evaluate how well students were using their minds, the more they found themselves rethinking their earlier practices.

Grading Less, Diagnosing More

All three teachers now spend much less time designing and grading daily work — tasks that had previously taken considerable time and attention. Instead, they spend more time designing larger projects and helping students with work in progress. Rather than giving mid-unit tests and quizzes to be graded at home, they use these tools in class to focus discussion and to assess how far along students are. Jennifer gives in-class partner quizzes, which are then assessed by the student pairs so that both she and they get a better sense of their progress. She no longer records the scores in her grade book, but she makes it clear to the students that they are responsible for using these exercises as serious diagnostic tools.

Jennifer, Kathryn, and Elizabeth now spend a lot of time diagnosing and identifying the needs of their students by engaging them in individual or small group conferences. They find themselves asking far more questions — what Donald Graves describes as "questions that teach."[9] They also spend more time watching students work, which enables them to better diagnose both problems and successes and to guide students in learning to use their minds well.

Assessing by Performance

All three spend considerable time developing evaluative measures that will enable their students to demonstrate their mastery of the skills and subjects studied. This focus on performance assessment is significantly different from their previous approach, which had been to ensure that students could recount information covered or supply correct answers. Elizabeth now asks students to generate a final project — like writing a new concluding chapter to *Of Mice and Men* — and to share it with others. When Jennifer's students share their final projects with the class at large, they have to demonstrate their computational skills, not on problems found in a text, but on problems they themselves have set up. The teachers believe that by having their students demonstrate their mastery of a subject and share it publicly with others, they are better able to track students' thinking and true grasp of the material.[10]

Building the Skills for Performance Assessment

As the teachers shifted to performance assessments, they realized that their students would need to learn different kinds of skills, skills of collaboration, for instance — how to work in groups, how to reach consensus, how to discuss controversial topics, how to consider another student's point of view and not just debate it or shout it down.

They also began to teach the skills of summary required for demonstrations and to help students to think through and anticipate what they would need to do to prepare a demonstration. Thus, the teachers now spend a lot of their time helping students to analyze, to plan, and to troubleshoot the requirements of a particular performance assessment.

Building the Skills of Self-Assessment

As their students became increasingly responsible for their own work, the teachers realized that the students also needed to learn to assess it. Jennifer and Elizabeth do this by requiring that students participate in metacognitive activities, where they have to describe their own learning. Elizabeth asks her students to describe their own planning process, to think about how to get started on a project. Jennifer asks students to write out explanations of how they solved a particular problem.

Both teachers ask students to analyze their use of time and to analyze the tasks they have undertaken to see what might be required to complete a project within a particular deadline. Both teachers use these activities to help students learn about their own learning processes and to assess their own progress.

The faculty at Kathryn's school have agreed on a list of "habits of mind" that they want students to develop during their years in school. These habits require that students routinely ask a series of questions:

How do we know what we know?
What's the evidence?
What's the viewpoint?
How else might it be viewed, seen, considered?
What difference does it make?

These questions foster an ability to step back from one's own learning to analyze both the process and the final product.

REDEFINING ROLES

Kathryn, Jennifer, and Elizabeth found that almost every change they made influenced their roles as teachers. As they began to see themselves and their professional responsibilities in a new light, they began to define teaching differently. And as they did, their students' roles changed too.

Shifting from Quarterback to Coach

In building lessons and activities that engage students, the teachers had gradually removed themselves from "center stage" in the classroom to the "wings," where they could more accurately watch the kids and gauge their progress. This change represented a significant shift in practice.

Elizabeth laughingly described the shift she had made as moving from the "quarterback" position, where she had had to carry the ball, to the sidelines, where she became the "coach" and the students became the ball-carriers. Jennifer described it in terms of moving from actor to director. "You know, I used to be performing all the time. I gave all my attention to my own performance — demonstrating problems at the board, explaining answers — and didn't have time to watch the kids." Her students now do the performing while she watches.

The teachers have come to see their students in a new light — no longer as passive receivers but as players capable of carrying the ball, running the plays, who need powerful and engaging experiences to learn to do that well. For the teachers, that means getting a lot done before class — organizing the lesson, preparing descriptions of the projects, getting props ready, anticipating problems and questions, upgrading their background knowledge — so that their time in class is free to watch, listen to, and coach the students.

They have had to learn to be quiet, not to answer all the questions themselves, not to supply information every time but to turn the learning back to the students. This was difficult, as they all admitted that they like the performance part of teaching. Still, they each described a moment of insight when they realized that their students needed the same opportunity to prepare and perform as they as teachers did.

At the same time, each of them is now more active in the classroom. Both Jennifer and Elizabeth wish they could wear roller skates to get around to their groups more quickly. Jennifer summarized for them all: "I spend my time figuring out how to get them engaged — through problem-solving and such like — and how to get them unstuck when they're mired down — through analyzing how they are doing things and trouble-shooting. I ask a lot more questions, and I try to help them build connections. It really is a different way of working. I'm asking myself a lot more questions, too."

Modeling a Zest for Learning

As a result of developing questions and problems for their students, the teachers came to realize that a part of teaching students to use their minds well was demonstrating the kinds of inquiry they wanted their students to do. So they have become learners in their own classrooms, gradually more willing to let their students see that they don't know everything. They no longer limit the scope of work in their classrooms so they won't be caught off guard. As a consequence, their classrooms are more open places, comfortable with curiosity and more tolerant of opposing opinions and of diversity in general.

Relieved of the pressure to know everything, the teachers have become more curious themselves. All of them said in one form or another, "I want to learn everything about everything! I need to know more about physics, geology, pottery, environmental science, demographics, theater, architecture." In each case, the list was long and refreshingly broad for subject-area specialists. This renewed curiosity has rekindled their enthusiasm for teaching and reminded them that an important goal in teaching is to foster zestful curiosity. They feel that their renewed enthusiasm for learning is infectious, and that their students are catching it.

Teaching the Whole Student

Kathryn, Elizabeth and Jennifer now see their kids more holistically, rather than as merely students of their particular subject. They have come to know their students more thoroughly as young people, to know more about their home lives, fears, dreams, hang-ups. Through observation and individual conferences, they are more aware of their individual strengths and weaknesses. They

feel better able to teach important content when they can see their students in this more holistic way, and they now believe that their primary responsibility is to know and guide each student to positions of greater strength. Their commitment is focused on individual students rather than on their discipline area or the class as a whole.

Making the Students the Workers

The adults are not the only ones who have experienced role changes. The students talk about and demonstrate their increased responsibility for their own learning. Kathryn's students told me that they were constantly working, that they had to get things *done* because their classes were too small for them to hide. They were responsible for selecting paper topics that interested them and for soliciting comments to help them revise. Several students described the court cases they had selected to work on and brought in fat files containing the research they'd been doing to prepare for their mock trials.

The former students who came back to visit Elizabeth talked about how difficult it had been to adjust to having to be more engaged. "At first we thought the teachers were treating us like we were geniuses or something. We had to do everything. After a while, though, we liked it better because we had more say in what we learned and how we learned it." One of the girls felt that her three years in the program had given her "the gift of her mind." They had also felt isolated from the rest of the student body, since they took all of their core classes as a group. Over time, however, the group had become very much like a family unit, and students and teachers together helped one other to recognize their individual strengths.

Jennifer's students felt that their OTL classes were tougher than other classes because they were constantly being asked to demonstrate how they knew what they knew. Almost every day they had to show the teacher and the other students what they'd done. Because they often had to reach consensus on answers and had to share their work, they had to think a lot harder about why they'd done what they'd done. The students, nonethless, appeared to be proud of their more vigorous role.

Advocating for Students

Kathryn, Elizabeth, and Jennifer have developed a great deal of respect for their students, which they demonstrate in every interaction, in class and out. Rather than talking about their students as troublesome, problematic or stupid, they talk sympathetically about the particular struggles they face in their lives outside of school. Rather than automatically blaming the students for poor responses to a daily activity, the teachers tend to quickly review the lesson, the materials they prepared, their own explanations, their construction of the groups — questioning whether the activity was designed well enough for the students to gain easy access to it. If a previously successful activity does not go well, as happened in Elizabeth's afternoon English class, the responsibility is turned back to the students, not as blame, but as a constructive lesson in self-evaluation.

This respect for students is unusual. In both Jennifer's and Elizabeth's schools, I overheard conversations among teachers or administrators ridiculing students and blaming poor performance solely on the kids. A teacher in Jennifer's school delightedly told me about a troubled girl who had flunked out of his class — she'd skipped too many times and he was finally rid of her! In Elizabeth's school, one of the teachers blamed a project that had gone poorly on the students: they were just too dull, too unmotivated, too ignorant about the world at large to care. She couldn't believe what they didn't know! How were these kids ever going to make it in the world? An administrator there told me that none of the students would amount to much, but that the staff worked hard to at least get them through school.

That Kathryn, Jennifer, and Elizabeth did not talk about students this way, that they held their students in high regard and treated them with genuine respect, permeated the atmosphere in their classrooms. None of them had to spend time disciplining students or correcting their behavior. And the students were respectful and attentive in return. While none of these teachers discussed such mutual respect as an aspect of their teaching philosophy or as an important part of their belief system, it was a dominant element of their professional interaction with students and colleagues and constituted a significant shift in the traditional role — from remote critics of their students to sympathetic advocates for them.

Building Collegial Relationships

Collaborating with their colleagues has reduced both the isolation and the autonomy in which these teachers had worked previously. Their

concept of their roles as teachers has expanded to include working with their fellow teachers in helping students, creating curriculum, developing assessments, discussing viable teaching techniques, and more. As such collaboration becomes the norm for them, all three have come to see collegiality as a privilege, a professional responsibility, and a sine qua non to their remaining in teaching.

Respecting the Complexity of Teaching

Jennifer, Kathryn, and Elizabeth have come to recognize teaching as far more complex than they had previously believed. Part of the recognition comes from their greater awareness of differences among students and their responsibility to deal with those differences. Part comes from collegial investigations with their teammates as they discover the interrelated nature of curriculum, pedagogy, and assessment. Another part comes from their concentration on student engagement.

All of them noted, too, that they now believe that there is no single best way to approach teaching, that staff development programs that promise sure-fire success actually address only a small part of the teaching act. Elizabeth now feels "a lot more respect for all teachers since I've gained a better understanding of just how complicated it is." Recognition of the complexity also leaves them freer to experiment. Knowing there is no single best way to teach a particular concept to all students has helped them to feel more secure about trying unfamiliar techniques.

Swirling the Chalkdust:
The Ramifications of Changing Practice

Changing long-held teaching practices, as Kathryn, Jennifer, and Elizabeth are doing, is a difficult and often fragile process. Without adequate support, it is easy to slip back into old habits. Too many intractable obstacles may discourage even the most enthusiastic attempts at change. The three identified a number of factors they felt had encouraged or inhibited their efforts to change.

SUPPORTS FOR CHANGE

The three teachers pointed to a number of enabling factors — factors that encouraged them as teachers and helped them to change their daily practice. Without these signposts, which indicated to them that they were on the right track, they believed they would have given up their efforts to change.

Greater Sense of Effectiveness

Kathryn, Jennifer, and Elizabeth reported a far stronger sense of efficacy, a belief that they were having greater success in teaching their students to use their minds well. In their reading and writing, students were grappling with more challenging ideas, and they worked hard to ex-press and defend personal opinions and to communicate them clearly. Kathryn's thirteen- and fourteen-year-old students surprised attorneys at a prestigious law firm by asking tough legal questions and engaging in a rigorous discussion of legal processes. This sense of efficacy renewed their enthusiasm for teaching and their commitment to it.

Membership in a Larger Network

The three teachers valued guidance through the change process afforded by their participation in the Coalition of Essential Schools. The nine Common Principles provided a backdrop against which to play out their ideas about better schooling. On the other hand, the principles were sufficiently open to interpretation that they did not feel de-skilled. Too often in their teaching careers, they had been exposed to programs designed to be teacher-proof, requiring merely that they follow the directions. All mentioned that the principles focused on helping students rather than targeting teachers as deficient or problematic, which was more in keeping with their beliefs about the purpose of school improvement.

At the same time, being part of a larger movement enhanced their confidence in their efforts. Each had had the opportunity to visit other schools involved in the Coalition and to share mutual dilemmas and struggles as well as successes. All three had participated in seminars that bring together Essential school teachers from across the country; all three had helped facilitate seminars in which they shared their experiences with newly interested teachers. These exchanges, they felt, validated the work they were doing in their home schools.

Systemic Support

The reallocation of class and planning time proved an important source of support. The opportunity to work in collaboration with their colleagues pushed them further than any of them believe they could have gone in isolation.[11] The extended class periods also enabled them to know their students better and build a problem-solving environment. For Elizabeth and Kathryn, the two-hour class periods made it possible to have students do more complex activities. Both indicated that they would not happily return to single-period blocks.

Administrative Support

The three teachers noted frequently that they would not have been able to accomplish any of the changes they had made if their administrators had not supported their efforts. Administrators gave them the autonomy to make decisions about curriculum, pedagogy, and assessment — authority they had not often had in their previous teaching experiences. Administrators were crucial, too, in running interference between their program, the district office, and state requirements.

INHIBITORS TO CHANGE

While the three women experienced encouragement for change, they were hampered in their

efforts at the same time, and sometimes by the very same factors which encouraged them.

Fear of Change

The teachers all reported that they had been fearful of change and that it surfaced in several ways. They feared that they would lose control of their classes, that if they opened up the learning environment, the students would create havoc and their professional reputations would be jeopardized.

They had doubts about personal adequacy. Did they know enough? Could they handle kids working in different ways? Did they have a firm grasp of their subject matter and of the other subjects they might encounter? They also feared the personal exposure inherent in collaboration. Would their colleagues discover that they didn't know as much as they should? Would their administrators discover that they lacked expertise?

They feared the impact of their heightened school involvement on the rest of their lives. As they became more involved and successful in their work, all three found it increasingly difficult to disengage at the end of the day and to balance their work life with their home life. Students and parents called them at home, which the teachers believed was a necessary part of the exchange but which further diminished the time they had available for their families.

Structural Problems

While the structural conditions have changed in all of their schools to support the changes in the classroom, these were sometimes insufficient. Structural problems surfaced in two ways.

While Kathryn and Elizabeth had longer periods to work with their students and while all three teachers had reduced student loads, they believed the class time was still inadequate. As they personalized their instruction to work more closely with students, they saw more that could be done for each student. And as they became better at constructing lessons that fostered engagement, they found they needed more time to build more complex and realistic activities. The time allocated for collaboration with their colleagues was also inadequate. Listening took time, clarifying took time, and reaching consensus took time. Insufficiency of time was a constant frustration.

Even in the face of significant change, what Seymour Sarason has called the "regularities" of schooling[12] — the durability of traditional structures and conventional teaching practices — have proved hard to break. Thus, despite schedule changes and additional time for collaborative planning, Jennifer, Kathryn, and Elizabeth are still teaching in isolation, one teacher to one classroom. They aren't sure whether their colleagues are working differently with students or not. When it comes right down to it, they are still able to close their own doors, and they question whether the reticence against opening up has significantly diminished.

Working Together

While working collaboratively with their colleagues has proved, on the one hand, a support for change, it has also provoked new dilemmas and tensions. One difficulty resides in the diversity of experience in their teaching teams. While they all agree that this adds richness for the students, it can make their working sessions long and grueling as they attempt to reach consensus on curriculum and on approaches with individual students. They frequently do not agree about methods, strategies, content, or outcomes. One of the teams Jennifer coordinates was divided by two teachers who had reached a kind of personal stalemate. They simply couldn't seem to work together, so the rest of the team constantly had to mediate between them.

For Elizabeth, whose grade-level team had collaborated well from the outset, it was the relationship with the larger faculty that was problematic. Jennifer's OTL program shared the same problem. The larger faculty were not well informed about the teams' work and as a result were somewhat resentful. Because teachers are used to having equal status and responsibility within a school, differentiating responsibilities in any way inevitably creates tensions and resentments.

Transitions in administrative and teaching staff also created problems. Elizabeth's team had worked with three principals in three years, one an advocate, another a thorn, another grudgingly supportive. In the last two cases, the team had expended enormous time and energy protecting their program and keeping their concerns and issues on the table. Kathryn's school experienced significant upheaval when a team member left. While she believed that the transition had worked out well, it caused everyone considerable anxiety while they were trying to fill the vacant position.

Jennifer's principal has just left. A traditionalist from within the district has been hired to replace him. They are all very nervous about the effect he will have on their program.

The time and energy Elizabeth's OTL team spent dealing with a truly skeptical administrator added another dimension of stress to their project. They were constantly afraid that the program would be dismantled. Some of his actions had seriously damaged the team's relationship with parents and with their faculty colleagues. Worn down by the skepticism and lack of support, Elizabeth has decided to take a leave of absence and another team member has moved to a more supportive Essential school.

THE BROADER IMPACT OF CHANGE

Jennifer, Kathryn, and Elizabeth were people interested in and ready for change. Their previous experience in teaching led them to believe that change was needed. Still, they were unprepared for the system-wide effects their changes provoked, the uncertainties engendered by change, and the difficulties in defining their new roles.

The Complex Nature of Change

The teachers quickly discovered the interdependence of the various parts of the school as well as the school's interconnectedness with the larger community. When they changed the school schedule, it affected parents' work schedules, daycare centers, the local library. When they changed their role in the classroom, students had to work in different ways: they asked more questions of their parents, needed more resources from the library. Each time the teachers changed something, they found themselves needing to educate someone else in the system about the whys and hows. This took a toll on their time and energy.

In another way, change appeared to be problematically comprehensive. When Elizabeth changed a unit to make it more student-centered, she had to develop new lesson plans. There simply weren't any in the books. Once she'd done the lesson plans, she had to redesign the assessment tools. She and her colleagues were unfamiliar with performance assessments and had difficulty finding examples. When Kathryn changed the format of a team meeting, she found that everyone's role shifted, which required some time and discussion. If she wanted to move her desks, she had to explain how she wanted the janitors to work in her room.

Every time they changed something, it not only sent ripples through the system, but they found themselves confronted with new problems or more unanswered questions. Whenever Jennifer built a new problem-solving project, she had to check to make sure she wasn't upsetting the scope and sequence of math skills. Occasionally her rearrangements upset someone else's plans. None of them had realized how interconnected and interdependent schools are, nor did they realize how complex changing schools really is.

Uncertainty, Experimentation, and Shared Experience

Elizabeth and Kathryn are each in their fourth year of their attempts to change their teaching. Techniques that once seemed foreign had now become routine. They find it very difficult to recreate the feelings they had when they tried something for the first time, and only vaguely recall that there were plenty of difficult moments. In fact, they talked about their past practices with a touch of scorn.

Jennifer, also in her fourth year, does not see herself as being very far along in changing her practice and is still dealing with her own internal struggles. She sometimes yearns for concrete answers that would put her questions to rest. Still, she feels that she has to function as a positive force on behalf of the program and consequently does not feel that she can be open about her dilemmas.

It is these kinds of moments, emotions, doubts, that I believe are at the heart of why teachers, principals, superintendents, and other human beings resist change. It is the discomfort of experimentation and the uncertainty that goes with it that make people to work hard to avoid change. Kathryn acknowledged that she had had moments when she reverted to old behaviors, told the kids to line up and be quiet. She felt embarrassed about these incidents. When one of her colleagues reminded her that she had had a tough time at first giving up control, Kathryn's demeanor changed and she admitted she was uncomfortable with the discussion. She shuddered as she recalled moments when she had floundered between her old teaching practices and her new. She felt deeply embarrassed that some of those moments had taken place in front of her colleagues or her students.

Elizabeth spoke feelingly about being challenged by parents and by the interim principal. She described how insecure she felt when asked why she needed to do things differently. Parents believed that they had turned out all right, and yet *their* teachers had not engaged in such nonsense. She felt diminished, reprimanded. On the other hand, she did not dwell on such feelings while she was experimenting.

Jennifer still experienced moments of terror when she worried whether her students would be behind in the "coverage" race. While she was confident that her students were learning better and more thoroughly, she had thirteen years of professional investment in the cover, cover, cover philosophy — and she herself had been taught that way. She talked openly about her fears with Paulette Miles and a couple of the other math teachers, but there were others whom she felt would immediately attack the program if she admitted uncertainty.

The Coalition's Joe McDonald suggests that experimentation and uncertainty traditionally have not been acceptable topics for conversation in educational circles.[13] When the notion of student-as-empty-vessel undergirds teachers' and administrators' beliefs about teaching, then the teacher must be the expert and must be very certain about what he or she is doing at all times.

Judith Warren Little has noted that teachers feel more inclined to examine their teaching if they work in a culture that supports experimentation.[14] My own observation in experimenting schools is that while everyone feels comfortable describing their experiments with new and acceptable teaching techniques — cooperative learning or interdisciplinary science or certain and successful "experiments" — educators are not comfortable talking about their uncertainty, their beginning efforts, their failures and doubts, as a means by which to grow.

PROBLEMS WITH LABELS AND DEFINITIONS

When I first began working with Elizabeth, Kathryn, and Jennifer, I had hoped that some clear distinctions might emerge — especially a distinction between "conventional" teachers and teachers-as-coaches — that would help us understand the changes these teachers were making. I imagined that historical traditions and classroom techniques specific to each would emege to clearly distinguish the two, giving teachers some of the hooks they ask for so frequently. After a considerable time trying to write clear definitions, I showed them to a teacher friend, who said, "So, which teaching techniques are conventional and which are teacher-as-coach? I've used all of these at one time or another, but your distinctions classify me as conventional. These teachers didn't trash everything they'd done for years and start over from scratch!"

There are several problems in trying to codify teaching into distinct categories and styles. First, it is not easy to distinguish one teaching style from another, since good teachers use a smorgasbord of methods. And if one manages to construct tight distinctions, some teachers feel guilty or insulted that the techniques they have been using are worthless. It had taken Jennifer three years to agree to begin changing her teaching practices. She struggled with the idea that if she did decide to change, it meant she'd really been a crummy teacher for twelve years. She knew it wasn't true, but she was used to thinking about teaching as right or wrong rather than as a continual learning process. Once Kathryn and Elizabeth had made the commitment to change, such rigid definitions encouraged them to disparage their own previous teaching stance as limited and unprofessional.

Second, definitions and labels are reductionist by nature. They have a tendency to portray teaching as a series of discrete, often unrelated acts, when, in fact, it is not much like that at all. Teaching is synergistic, more art than science, and requires that teachers understand and develop the necessary tools and heed their intuition and make judgments about when to use what tools. The attempt to build rigid definitions reduces the likelihood that teaching will be recognized as a craft, an art, a profession that requires that teachers develop the judgment about when to use which strategies for the greatest benefit to students; it diminishes the likelihood that educators will practice, model, and value a most important lesson for students — that teaching, like all other professions, requires learning that continues throughout one's career.

The flip side of the problem of reductionist definitions is labels too broadly applied. It is embodied by a common reaction heard in schools: "I already do that" or "Our school has always done that." In this case, tight definitions are replaced by easy generalizations and, consequently, lose their meaning. "We do cooperative learning" may mean that the students are paired up for recess. "My students are definitely the workers!" may

mean that each student reads the chapter and answers the questions at the end. I couldn't possibly count the number of good ideas which I, too, have dismissed because, on the surface, they sounded familiar and old hat. Such labels deny the complexity inherent in any teaching practice and allow people to dismiss new possibilities on the basis of surface impressions.

What Kathryn, Elizabeth, Jennifer, and I gained from the examination of their past and present practices was not carefully drawn definitions or tidy distinctions; we gained understanding about the centrality of students to the learning enterprise. Their students are right in the middle of each learning exercise. They are doing it, puzzling over it, talking about it, rearranging it. They do not spend much time passively listening nor do they spend large amounts of time receiving and recalling information. And because of it, Jennifer, Kathryn, and Elizabeth believe that those students are learning what will stand them in good stead throughout their adult lives — they are learning thoroughly, mastering, a set of essential skills and areas of knowledge and, above all, they are learning how to use their own minds well.

NOTES

1. For example, see Larry Cuban, "Persistent Instruction: The High School Classroom, 1900–1980," *Phi Delta Kappan* 64, no. 2 (1982): 113–118.

2. The results of the study are reported in three volumes, published by Houghton Mifflin: Theodore R. Sizer, *Horace's Compromise* (1985); Arthur G. Powell, Eleanor Farrar, and David K. Cohen, *The Shopping Mall High School* (1985); and Robert L. Hampel, *The Last Little Citadel* (1986).

3. All three teachers preferred the term "conventional" to "traditional," feeling it was less pejorative. Contemporary literature and film abounds with images of conventional teaching: for example, Christine Zajac in Tracy Kidder's *Among Schoolchildren* (Boston: Houghton Mifflin, 1989) and Robin Williams's role in *Dead Poets Society*.

4. For the full texts of the cases, see Patricia A. Wasley, *Trusting Kids and Their Voices* [Kathryn], *A Feeling of Uneasiness* [Elizabeth], and *A Formula for Making a Difference* [Jennifer], Studies in Teacher Change (Coalition of Essential Schools, Brown University, 1990).

5. For a fuller discussion of essential questions, see Grant A. Wiggins, "Creating a Thought-Provoking Curriculum: Lessons from Whodunits and Others," *American Educator* 11, no. 4 (1987): 10–18.

6. Exhibitions are performance-based assessments, requiring students to engage in authentic activities and inquiries, to rehearse and practice for their exhibition, and to be able to defend and explicate their work. Teachers in Kathryn's school are experimenting with such performance measures to record student progress at the end of a unit, or term. They call these mini-exhibitions.

7. The activity is taken from Malcolm Swan, *The Language and Function of Graphs* (Nottingham, England: Shell Centre for Mathematical Education, Dale Seymour Publications, 1984).

8. For a more thorough discussion, see Fred Newmann, "Student Engagement in Academic Work: Expanding the Perspective on Secondary School Effectiveness" (unpublished manuscript, University of Wisconsin–Madison, December 1989).

9. Donald H. Graves, *Writing: Teachers and Children at Work* (Exeter, NH: Heinemann Educational Books, 1983).

10. For a thorough discussion of performance assessment, see Grant Wiggins, "Teaching to the (Authentic) Test," *Educational Leadership* 46, no. 8 (1989): 41–47.

11. Other researchers have corroborated this finding and have detailed the benefits of collaboration more thoroughly. See for instance, S. Rosenholtz, *Teacher's Workplace: A Study of Social Organization* (New York: Longman, 1989); J. W. Little, "Seductive Images and Organizational Realities in Professional Development," in *Rethinking School Improvement*, ed. Ann Lieberman, 26–44 (New York: Teachers College Press, 1986).

12. Seymour B. Sarason, *The Culture of the School and the Problem of Change* (Boston: Allyn and Bacon, 1971).

13. Joseph P. McDonald, *Uncertain Craft: Teaching, Closely Read* (New York: Teachers College Press, forthcoming).

14. J. W. Little, "Seductive Images and Organizational Realities in Professional Development," in *Rethinking School Improvement*, ed. Ann Lieberman, 26–44 (New York: Teachers College Press, 1986).

The Common Principles
of the
Coalition of Essential Schools

1. The school should focus on helping adolescents learn to use their minds well. Schools should not attempt to be "comprehensive" if such a claim is made at the expense of the school's central intellectual purpose.

2. The school's goals should be simple: that each student master a limited number of essential skills and areas of knowledge. While these skills and areas will, to varying degrees, reflect the traditional academic disciplines, the program's design should be shaped by the intellectual and imaginative powers and competencies that students need, rather than necessarily by "subjects" as conventionally defined. The aphorism "Less Is More" should dominate: curricular decisions should be guided by the aim of thorough student mastery and achievement rather than by an effort merely to cover content.

3. The school's goals should apply to all students, while the means to these goals will vary as those students themselves vary. School practice should be tailor-made to meet the needs of every group or class of adolescents.

4. Teaching and learning should be personalized to the maximum feasible extent. Efforts should be directed toward a goal that no teacher have direct responsibility for more than eighty students. To capitalize on this personalization, decisions about the details of the course of study, the use of students' and teachers' time and the choice of teaching materials and specific pedagogies must be unreservedly placed in the hands of the principal and staff.

5. The governing practical metaphor of the school should be student-as-worker rather than the more familiar metaphor of teacher-as-deliverer-of-instructional-services. Accordingly, a prominent pedagogy will be coaching, to provoke students to learn how to learn and thus to teach themselves.

6. Students entering secondary school studies are those who can show competence in language and elementary mathematics. Students of traditional high school age but not yet at appropriate levels of competence to enter secondary school studies will be provided intensive remedial work to assist them quickly to meet these standards. The diploma should be awarded upon a successful final demonstration of mastery for graduation — an "Exhibition." This Exhibition by the student of his or her grasp of the central skills and knowledge of the school's program may be jointly administered by the faculty and by higher authorities. As the diploma is awarded when earned, the school's program proceeds with no strict age grading and with no system of "credits earned" by "time spent" in class. The emphasis is on the students' demonstration that they can do important things.

7. The tone of the school should explicitly and self-consciously stress values of unanxious expectation ("I won't threaten you but I expect much of you"), of trust (until abused) and of decency (the values of fairness, generosity and tolerance). Incentives appropriate to the school's particular students and teachers should be emphasized, and parents should be treated as essential collaborators.

8. The principal and teachers should perceive themselves as generalists first (teachers and scholars in general education) and specialists second (experts in but one particular discipline). Staff should expect multiple obligations (teacher-counselor-manager) and a sense of commitment to the entire school.

9. Ultimate administrative and budget targets should include, in addition to total student loads per teacher of eighty or fewer pupils, substantial time for collective planning by teachers, competitive salaries for staff and an ultimate per pupil cost not to exceed that at traditional schools by more than 10 percent. To accomplish this, administrative plans may have to show the phased reduction or elimination of some services now provided students in many traditional comprehensive secondary schools.

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